



Dock Foam Issue Still Afloat

Solid Waste Management Program fact sheet

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In 1995, AmerenUE (formerly Union Electric) banned the use of unencapsulated Expanded Polystyrene (EPS) as flotation material for boat docks on the Lake of the Ozarks. This resulted in a noticeable generation of expanded polystyrene solid waste on shore, in the woods and in area landfills. Similar problems with EPS have been reported on other Missouri lakes where boat docks are prevalent.

The breakup of these foam floats due to passing boat traffic or seasonal rising and lowering of the water level due to routine hydro electrical generation practices prompted the ban. The floating foam pieces are considered a hazard to boat traffic and blight along the shore, especially noticeable during the annual winter and early spring drawdown.

AmerenUE works closely with area dock builders through an association which sets construction and materials standards for new docks being built along the 1,500 or so miles of shoreline. As old docks are dismantled, the waterlogged foam is taken away. Unfortunately, do-it-yourself flotation replacement projects or commercial services seeking to avoid disposal costs have continued to abandon white EPS, orange and blue flotation foam at the back of remote coves or the material is pushed out into the lake.

In 1992 an organized effort to clean up 50 years accumulation of trash and floating foam from the shoreline emerged as the Adopt the Shoreline program. This, linked to the annual spring Shoreline Beautification Project, has gathered EPS at on-shore collection sites for proper disposal. Other deposits of dock foam can be found in isolated dumps near marinas, at the end of coves, stacked near old boat yards and a few established by commercial solid waste handling firms.

For the most part, foam picked up by these commercial entities is delivered to area landfills for burial. However, due to their waterlogged condition, the foam pieces are very heavy and therefore costly as landfill tipping fees are applied.

A review of solid waste publications and plastics industry newsletters, as well as Internet information sites reveals no commercial market for polystyrene dock foam. However, some interest has been expressed in recycling clean foam as packing material or soiled foam as gravel supplement in septic tank drain fields. Used foam is also being used in some places as fill along side concrete construction or as interior material for concrete landscaping walls.

AmerenUE officials had tried mixing ground up foam with paper to use as a waste-to-energy fuel in the corporation's electrical generation system, but the correct mixture has not yet been found. A firm, which had hoped to grind the foam for use in potting soil, has rejected the proposal due to the saturation of the material with waterborne petroleum products. The foam soaks up the spilled gasoline and oils left by heavy boat traffic and retain the smell. The effectiveness of the foam as a petroleum-filtering medium has apparently not been fully investigated.

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Virgil Flanigan at the Center for Environmental Science and Technology at University of Missouri – Rolla is a leader in present research into the dock foam solid waste issue. For five years he and his colleagues have been working on a method of turning dock foam into something useful. Flanigan recently noted that the water content of dock foam is the major obstacle in having it recycled through more conventional means.

Two years ago, in response to a Dock Foam Task Force investigation into types of recycling that dock foam might qualify for, the Rolla research group and the Missouri Soybean Growers Association demonstrated the ability of the soybean-based fuel to dissolve EPS. Now the process, which involves machinery needed to blend the liquid, is awaiting marketing support.

The group had started using bio-diesel, methyl soyate developed from soybeans, to dissolve dock foam. Now the researchers are using a solution to use as a sealer or coating on log home siding, docks or decks and are pressure treating fence posts with the solution.

The resulting solution has been found to be economical to produce, biodegrades three times faster than mineral oil, has a two to three year effective life as a sealant and gives off no VOC emissions.

As the public becomes aware of the leaching impact of arsenic from copper chromium arsenate (CCA) treated lumber, Flanigan suspects there will be growing interest in sealing existing CCA decks and docks. The group is now doing leaching tests and have found that the soy solution will seal arsenic into the wood until it needs to be reapplied in two to three years. To prevent termite damage, borax is mixed with the soy solution. It also appears to remain active until it is time to reapply the coating.

The research group, operating as NDF, has applied coatings to five homes in the Salem, Missouri area and several docks. He said the material would probably retail at around \$10 per gallon. Pigments can also be added to the solution for use on homes. When burned in the 1:1 ratio, the solution delivers 17,000 BTUs.

He said money to do the research has come from the soybean growers' checkoff system that allows growers to finance marketing and product research with a donation from the sale of each bushel of soybeans.

For further information on the research at UM-Rolla, contact Dr. Flanigan at (573) 341-6606.

Meanwhile, it appears that landowners with foam deposits on their property can get rid of the accumulation at a local landfill or by arranging for its hauling with a commercial solid waste handling company. As the supplies of foam become more economically attractive to plastic recyclers, a non-landfill disposal alternative will hopefully emerge.

For more information

For information on this and other solid waste issues, contact the Missouri Department of Natural Resources Solid Waste Management Program at (573) 751-5401 or 1-800-361-4827.